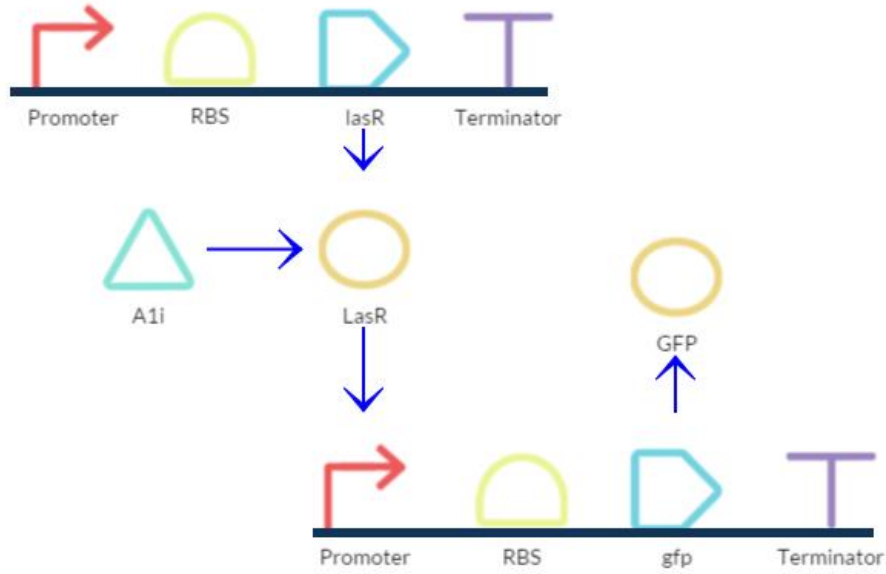


Biosensor_lasP



Formulae for two certain parts

LasR and lasR

$$\frac{d[\text{LasR}]}{dt} = \chi_{\text{promoter}J23119} k[\text{lasR}] - d[\text{LasR}]$$

LasR1 and A1i1

$$\frac{d[\text{LasR}]}{dt} = \chi_{\text{promoter}J23119_1} k_1[\text{A1i}] - d[\text{LasR}]$$

GFP1 and gfp1

$$\frac{d[\text{GFP}]}{dt} = \chi_{\text{promoter}J23119_1} k_2[\text{gfp}^F] - d[\text{GFP}]$$

$$[\text{gfp}^F] = [\text{gfp}] \frac{[\text{A1i}]^n}{Kd \chi_{\text{promoter}J23119_1} + [\text{A1i}]^n}$$

Formulae for numerical simulation

$$\frac{d[\text{LasR}]}{dt} = \chi_{\text{promoter}J23119_1} k_1[\text{lasR}][\text{A1i}] - d[\text{LasR}]$$

$$\frac{d[\text{GFP}]}{dt} = \chi_{\text{promoter}J23119_1} k_2[\text{gfp}^F] - d[\text{GFP}]$$

$$[\text{gfp}^F] = [\text{gfp}] \frac{[\text{LasR}]^n}{Kd \chi_{\text{promoter}J23119_1} + [\text{LasR}]^n}$$

Parameter table

Symbols	Parameters	Values and Units
k ₁	Production rate of LasR	6.84umol*min ⁻¹
k ₂	Production rate of GFP	7.22umol*min ⁻¹
k ₃	Production rate of RhlR	6.24umol*min ⁻¹
n	Hill coefficient	3
Kd	Repression coefficient	4.8
d	Degradation rate	4.3 s ⁻¹

Reference: <http://2011.igem.org/Team:Northwestern/Notebook/Protocols>